28. The method of Claim 27, further comprising coating a bottom surface of the thin film with the anti-reflective material.

29. **(Twice Amended)** The method of Claim 26, further comprising the peak in transmission located between approximately one nanometer and approximately twenty nanometers above the exposure wavelength.

30. The method of Claim 26, further comprising coating at least one of a top surface and a bottom surface of the thin film with a plurality of adjoining layers of anti-reflective material, each layer including a different refractive index.

## REMARKS

Applicants have carefully reviewed this Application in light of the Final Office Action mailed October 7, 2002. Claims 1-6 were previously canceled without prejudice or disclaimer. Claims 7- 30 are pending in this Application. Claims 7-30 stand rejected under 35 U.S.C. §112, first paragraph, Claims 7-9, 17, 19 and 26 stand rejected under 35 U.S.C. §102(b) and Claims 10-16, 18, 20-25 and 27-30 stand rejected under 35 U.S.C. §103. Applicants have amended Claims 7-9, 12, 17-19, 21, 26 and 29 to further define various features of Applicants' invention. Applicants respectfully request reconsideration and favorable action in this case.

### Rejections under 35 U.S.C. § 112

Claims 17-30 stand rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention.

Specifically, the Examiner states that "[i]t is not clear if *different* thickness of the thin film is being made at different incident angle or position to enable the optimization or the film has a uniform thickness through out that enables the optimization." (Paper No. 6, Pages 2-3) (emphasis in original). Applicants respectfully submit that the Specification clearly

teaches how to produce a peak in transmission when a thin film has a uniform thickness. As described in the Application, film 51 is formed by spin coating a solution on a glass substrate such that when the spinning is stopped and the coating is heated to evaporate solvent a uniform thin film is formed. (Specification, Pages 10-11). The Application also teaches that an example thin film has a physical thickness of 855 nm and that this thicker film improves the transmission of off-axis light. (Specification, Page 18).

Furthermore, Applicants have amended Claims 7, 17, 18 and 26 and submit that Claims 7-30 now meet the requirements of section 112, first paragraph. Applicants respectfully request that the Examiner reconsider and withdraw the rejections to Claims 7-30.

**Rejections under 35 U.S.C. § 102**

Claims 7-9, 17, 19 and 26 stand rejected by the Examiner under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,742,386 issued to Noriyuki Nose et al. (hereafter "Nose").

Applicants respectfully traverse the § 102(b) rejections. The Examiner states that "[a]lthough [Nose] does not teach explicitly that for these thicknesses the transmittance for the normal incident will occur at wavelengths greater than the exposure wavelength, however such feature is implicitly included." (Paper No. 6, Page 5). The Examiner's rejection, however, fails because Nose does not disclose the recited elements as necessarily present. To establish that a claim element is inherent in a prior art reference, extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). Inherency, however, may not be established by probabilities or possibilities. *Id.* The Examiner further states that "it is known in the art that the maximum transmittance of the pellicle film is determined by the equation: $m * \lambda = (2 * n) * d \ldots$." (Paper No. 6, Page 5). However, only by reading Applicants' Specification can a person of skill in the art determine how the above equation (e.g., $d = N\lambda/2n\cos\theta$ where $\theta = 0°$ for normal incident light) is associated with maximum transmittance of a pellicle film. (Specification, Page 14). It is improper to use Applicants' Specification as evidence that a claim element is well known in the art. Nose, therefore, cannot anticipate Claims 7, 17 and 26 because Nose does not teach, either explicitly or inherently, all elements of Claims 7, 17

and 26.

Nose discloses an apparatus for detecting foreign matter on a substrate. As shown by Figure 7, the transmittance of S-polarized light changes with the incident angle and the pellicle thickness. (Col. 6, Lines 35-37).

Claim 7, as amended, recites a pellicle comprising "a thin film including an optical thickness, the optical thickness operable to produce a peak in transmission for normal incidence light at a wavelength greater than an exposure wavelength and maximize transmission of the exposure wavelength at an angle of incidence greater than zero."

Claim 17, as amended, recites a photolithography system comprising a "thin film including an optical thickness that produces a peak in transmission for normal incidence light at a wavelength greater than the exposure wavelength."

Claim 26, as amended, a method for performing photolithography comprising "forming a thin film including an optical thickness, the optical thickness operable to produce a peak in transmission for normal incidence light at a wavelength greater than an exposure wavelength and maximize transmission of the exposure wavelength at an angle of incidence greater than zero."

Applicants respectfully submit that the cited reference fails to disclose each and every element of Applicants' invention as amended. Nose fails to teach a pellicle comprising "a thin film including an optical thickness, the optical thickness operable to produce a peak in transmission for normal incidence light at a wavelength greater than an exposure wavelength and maximize transmission of the exposure wavelength at an angle of incidence greater than zero," as recited by amended Claim 7. Nose also fails to disclose a photolithography system comprising a "thin film including an optical thickness that produces a peak in transmission for normal incidence light at a wavelength greater than the exposure wavelength," as recited in amended Claim 17. Finally, Nose fails to teach a method for performing photolithography comprising the step of "forming a thin film including an optical thickness, the optical thickness operable to produce a peak in transmission for normal incidence light at a wavelength greater than an exposure wavelength and maximize transmission of the exposure wavelength at an angle of incidence greater than zero," as recited by amended Claim 26. The cited reference fails to disclose the recited limitations and, therefore, cannot anticipate Claims 7, 17 and 26.

Given that Claims 8-16 depend from Claim 7, Claims 18-25 depend from Claim 17, and Claims 27-30 depend from Claim 26, Applicants respectfully submit that Claims 8-16, 18-25 and 27-30 are allowable. As such, Applicants respectfully request that the Examiner withdraw the rejections and allow Claims 7-30.

**Rejections under 35 U.S.C. § 103**

Claims 16 and 18 stand rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over Nose. Claims 10-15, 20-25, and 27-30 stand rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over Nose in view of U.S. Patent No. 4,657,805 issued to Yasunori Fukumitsu et al. (hereafter "Fukumitsu").

Claims 10-16 depend from and provide further patentable limitations to allowable Claim 7. Claims 18 and 20-25 depend from and provide further patentable limitations to allowable Claim 17. Claims 27-30 depend from and provide further patentable limitations to allowable Claim 26. Therefore, Applicants respectfully submit that the Examiner reconsider, withdraw the rejections and allow Claims 10-16, 20-25 and 27-30.

## CONCLUSION

Applicants appreciate the Examiner's careful review of the application. Applicants have now made an earnest effort to place this case in condition for allowance in light of the amendments and remarks set forth above. For the foregoing reasons, Applicants respectfully request reconsideration of the rejections and full allowance of Claims 7-30.

Attached hereto is a marked-up version of the changes made to the claims by the current amendments. The attached pages are captioned **"Version with Markings to Show Changes Made"**.

The Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-2148 of Baker Botts L.L.P.

If there are any matters concerning this application that may be cleared up in a telephone conversation, please contact Applicants' attorney at 512.322.2581.

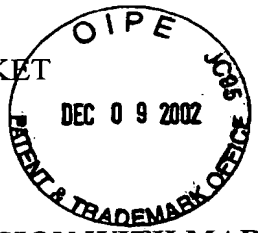
Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Applicants

Thomas R. Felger
Reg. No. 28,842

Date: 9 DEC 2002

Correspondence Address:
Paula D. Heyman
98 San Jacinto Blvd., Suite 1500
Austin Texas 78701-4039
512.322.2581
512.322.8328 Fax






**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

IN THE SPECIFICATION:

1. Please replace the paragraph beginning on Page 12, Line 16 with the following re-written paragraph:

FIGURE 4 illustrates a graph of one embodiment of pellicle transmission maxima for various **[exposures]** **exposure** wavelengths. Conventional pellicles are designed to have transmission maxima at the selected exposure wavelengths of an associated photolithography system. As shown in FIGURE 4, the transmission peaks for the pellicle tested occur at exposure wavelengths of 248 nanometers (nm) (e.g., deep UV), 365 nm (e.g., I-line), and 436 nm (e.g., G-line). The placement of the transmission peaks versus exposure wavelength is directly related to the physical thickness of film 51. In conventional pellicles, the optical thickness of the thin film is designed to be an even multiple of the exposure wavelengths used in the photolithography system in order to produce a peak in transmission at or near one or more of the exposure wavelengths.

IN THE CLAIMS:

Please amend Claims 7-9, 12, 17-19, 21, 26 and 29 as set out below.

7. **(Twice Amended)** A pellicle comprising**:**

**a frame; and**

a thin film including an optical thickness **coupled to the frame**, the optical thickness operable to produce a **peak in** transmission **[maxima]** for normal incidence light at a wavelength greater than an exposure wavelength **[in order to]** **and** maximize transmission of the exposure wavelength at an angle of incidence greater than zero.

8. **(Twice Amended)** The pellicle of Claim 7, **[further comprising]** **wherein maximizing transmission of the exposure wavelength at the angle of incidence greater than zero comprises** increasing the optical thickness **over a design thickness** by less than or equal to approximately one-quarter of the exposure wavelength **[in order to produce the transmission maxima]**.

9. **(Twice Amended)** The pellicle of Claim 7, further comprising the **peak in** transmission **[maxima]** located between approximately one nanometer and approximately twenty nanometers above the exposure wavelength.

12. **(Twice Amended)** The pellicle of Claim 10, further comprising the **peak in** transmission **[maxima]** located between approximately one nanometer and approximately twenty nanometers above the exposure wavelength.

17. **(Twice Amended)** A photolithography system for optimizing off-axis transmission of light, comprising:

a photomask; and

a pellicle comprising:

a frame coupled to the photomask; and

a thin film operable to transmit approximately ninety-nine percent (99%) of off-axis light at an exposure wavelength, the thin film including an optical thickness that produces a **peak in** transmission **[maxima]** for normal incidence light at a wavelength greater than the exposure wavelength.

18. **(Twice Amended)** The system of Claim 17, **[further comprising] wherein transmitting approximately 99% of the off-axis light at the exposure wavelength comprises** increasing the optical thickness **over a design thickness** by less than or equal to approximately one-quarter of the exposure wavelength **[in order to produce the transmission maxima]**.

19. **(Twice Amended)** The system of Claim 17, further comprising the **peak in** transmission **[maxima]** located between approximately one nanometer and approximately twenty nanometers above the exposure wavelength.

21. **(Twice Amended)** The system of Claim 20, further comprising the **peak in** transmission **[maxima]** located between approximately one nanometer and approximately twenty nanometers above the exposure wavelength.

26. **(Twice Amended)** A method for performing photolithography, comprising:

forming a thin film including an optical thickness, the optical thickness operable to produce a **peak in** transmission **[maxima]** for normal incidence light at a wavelength greater than an exposure wavelength **[in order to] and** maximize transmission of the exposure wavelength at an angle of incidence greater than zero;

attaching the thin film to a frame to form a pellicle;

mounting the pellicle to a photomask; and

exposing the pellicle and the photomask to radiant energy having the exposure wavelength.

29. **(Twice Amended)** The method of Claim 26, further comprising the **peak in** transmission **[maxima]** located between approximately one nanometer and approximately twenty nanometers above the exposure wavelength.